

REMARKS

Claims 1-13 are pending in this application. By this Amendment, claims 1 and 5 are amended. Claims 10-13 are added. Support for the amendment of claim 1 can be found, for example, in paragraphs [0014] and [0031]. Support for the addition of claim 10 can be found, for example, in paragraph [0013] and Fig. 2, and support for the addition of claims 11-13 can be found, for example, in paragraphs [0015]-[0017], respectively. No new matter is added. Claims 5-8 are provisionally withdrawn from consideration as being drawn to a non-elected group of claims. Reconsideration of the application in view of the foregoing amendments and the following remarks is respectfully requested.

Withdrawn claim 5 is amended to be consistent in scope with claim 1. According to M.P.E.P. §821.04(b), when elected product claims are allowable, the withdrawn process claims which require all the limitations of an allowable product should be considered for rejoinder. Thus, when all claims to the elected product are in condition for allowance, all claims eligible for rejoinder (see MPEP §821.04) must be considered for patentability.

The Office Action rejects claims 1-4 and 9 under 35 U.S.C. §112, first paragraph. The Office Action alleges that the addition of the feature "substantially tubular structure" constitutes new matter because there is no support for this feature. The rejection is respectfully traversed.

Applicants respectfully point out that the specification, in paragraph [0013] on page 5 as originally filed states, "The substrate is not, however, limited to such tubular or cylindrical member." Thus, the specification, as originally filed, fully supports this feature. Although Applicants do not agree with the rejections, claim 1 is amended to change the phrase "substantially tubular structure" to "said substrate having an inner wall." Dependent claim 10 is added, directed toward the feature of the "substantially tubular structure." Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The Office Action rejects claims 1-4 and 9 under 35 U.S.C. §112, second paragraph as being indefinite for lack of proper antecedent basis. The Office Action alleges that the terms "substantially" and "high" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the claimed subject matter. In view of the claim 1 amendments, the rejection is moot.

The Office Action rejects claims 1-4 and 9 under 35 U.S.C. §103(a) over U.S. Patent No. 5,236,511 to Etzkorn et al. (Etzkorn). This rejection is respectfully traversed.

Claim 1 recites, among other features, flowing a gas for plasma reaction over said inner wall surface and applying a pulse voltage from a high voltage pulse source on said substrate without substantially applying a DC bias voltage source on said substrate to form said thin film on said inner wall surface, wherein the high voltage pulse source applies an electric field in a range of 20 to 300 kV/m, the inner wall faces an inner space of said substrate, and the inner space has a diameter of 0.9 mm or smaller. Etzkorn cannot reasonably be considered to have suggested this combination of features.

Etzkorn teaches a plasma-CVD for coating dome-like substrates such as reflectors. In col. 4, lines 52-57, Etzkorn discusses that several known (i.e. conventional) methods, such as, high-frequency, low-frequency, microwave, direct-voltage or pulsed direct-voltage excitation, can be used to excite plasma within the CVD. Fig. 1 of Etzkorn discloses that the substrates 1 are positioned within a receptacle having a base plate 2 and a covering plate 3. In col. 10, lines 34-42, Etzkorn further explains that the plasma can be excited capacitively, in a manner such that both the base plate 2 and the covering plate 5 of a receptacle are composed of metal, and a voltage is applied between the two plates. With this arrangement, both dielectric and metallic coatings or mixed coatings of dielectric and metallic materials are deposited onto the substrates 1.

Etzkorn does not teach or suggest flowing a gas for plasma reaction over the inner wall surface and applying a pulse voltage from a high voltage pulse source on a substrate without substantially applying a DC bias voltage. First, there is no specific mention of a DC bias voltage in Etzkorn. The Office Action alleges that because there is no specific mention of "a DC bias voltage" that there is no disclosure of the application of a DC bias voltage. The Office Action analysis and assumption is incorrect. Etzkorn specifically states that it applies the conventional techniques "known per se" to produce the plasma zone (Etzkorn, col. 10, lines 33-34-36). As Applicants discuss in the specification, the conventional technique is the application of a DC bias voltage. Thus, the application of these conventional techniques in Etzkorn likely includes the application of a DC bias voltage.

Second, there is no motivation in Etzkorn to omit the DC bias voltage from its conventional techniques because there is no positive recitation within Etzkorn to remove the DC bias voltage from the application of its conventional techniques. Therefore, the asserted motivation falls short of meeting the required standards. The alleged motivation presented in the abbreviated conclusory form "the reference does not disclose a DC bias voltage" is not enough to prove that there is a teaching, suggestion or motivation in the prior art to produce a thin film on an inner wall surface of a substrate without substantially applying a DC bias voltage in the manner suggested by the Office Action. The Federal Circuit recently reaffirmed its prior holdings asserting that "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, Appeal No. 04-1616, March 22, 2006 (Fed. Cir.) (quoting *In re Lee*, 277 F.3d 1338,1343 46 (Fed. Cir. 2002)). This standard is not met here as no articulated reasoning with some rational underpinning is provided.

Third, Etzkorn does not teach or suggest that its apparatus can be used to coat an inner wall of a substrate having an inner space with a diameter of 0.9 mm or smaller, as claim 1 recites. Etzkorn emphasizes, for example, in col. 4, lines 28-34, col. 9, lines 34-35, and col. 10, lines 22-33, the importance of maintaining a specific "spacing profile" in order for its device to operate according to its intended purpose and not impair the quality of the coating applied to the reflectors. Specifically, Etzkorn states, "the spacing should not be less than 20 mm" (col. 4, lines 30-34).

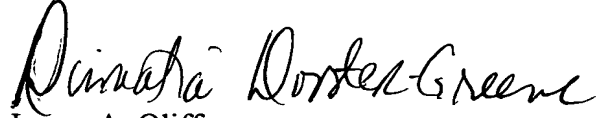
In view of the above, Etzkorn would not reasonably have suggested, the combination of all of the features positively recited in claim 1. Further, dependent claims 2-4 and 9 would also not have been suggested by Etzkorn for at least their respective dependence directly or indirectly on an allowable base claim, as well as for the separately patentable subject matter that each of these claims recite.

Added claims 10-13 depend from claim 1. Thus, added claims 10-13 would also not have been suggested by Etzkorn for at least their respective dependence directly or indirectly on an allowable base claim, as well as for the separately patentable subject matter that each of these claims recite.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Withdrawn claim 5 is amended to be consistent in scope with claim 1. Thus, rejoinder of claims 5-8 and favorable and prompt allowance of claims 1-13 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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